Fortruss Forming System – System Fire Rating

Fortruss Structural Insulated Slab Forming System:

Fortruss is a stay-in-place concrete forming system used to create suspended concrete floor and roof slabs for all types of structures, while providing excellent insulation value. A Fortruss floor or roof design is an engineered suspended slab requiring an engineer's stamp for each unique application.

The structural capabilities of the Fortruss System are not provided by the forming system itself, but rather the concrete and reinforcement placed on the form work that will create a structural one way slab with integral beams.

Fire-Resistance Rating:

The fire-resistance rating of Fortruss will depend on the thickness of the slab (not including the integral beam sections below the slab) and the concrete cover to reinforcement.

The minimum concrete thickness and concrete cover required to meet specific fire-resistance ratings are shown in the table below, in accordance with Appendix D of the National Building Code of Canada.

Table D-2.2.1.A.
Minimum Thickness of Reinforced and Prestressed Concrete Floor or Roof Slabs, mm

Type of Concrete	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Type S concrete	60	77	90	112	130	158	180
Type N concrete	59	74	87	108	124	150	171
Type L40S or Type L concrete	49	62	72	89	103	124	140

Table D-2.2.1.B.
Minimum Concrete Cover over Reinforcement in Concrete Slabs, mm

Type of Concrete	Fire-Resistance Rating						
	30 min	45 min	1 h	1.5 h	2 h	3 h	4 h
Type S, N, L40S or L concrete	20	20	20	20	25	32	39
Prestressed concrete slabs Type S, N, L40S or L concrete	20	25	25	32	39	50	64

In addition, the above tables also comply with ACI 216, "Code Requirements for Determining Fire Resistance of Concrete and Masonry Construction Assemblies."

Thermal Barrier:

The stay in place insulation will in most applications require a thermal barrier which is normally achieved with ½ drywall. This does not impact the fire rating of the floor assembly but is a code requirement when using foamed insulations. In some cases, supplementary mechanical attachment of the thermal barrier to the concrete floor assembly may be required.

Rigid EPS Insulation:

Terrafoam (Expanded Polystyrene) rigid insulation is part of the formwork provided as part of the Fortruss System and is left in place after the floor is poured. Terrafoam meets or exceeds the requirements of CAN/ULC S701-05 per Evaluation listing CCMC 12982-L

If you require further information please feel free to contact me.

Best Regards,

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